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U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF ANIMAL INDUSTRY.

A. D. MELVIN, Chief of Bureau.

THE NECESSITY FOR ERADICATING FOOT-AND-MOUTH DISEASE.

The nature and characteristics of foot-and-mouth disease, together with some history of the various outbreaks in this and other countries, are given in detail in Farmers' Bulletin 666, and for this reason will be but lightly touched upon in this pamphlet.

There are a large number of the diseases of domestic animals, as well as diseases of the human species, which are known to be due to the activities of "germs," minute members of the vegetable and animal kingdom, which may not be visible even with the high powers of a microscope. Of all these it is doubtful if any is as easily spread as is the germ of foot-and-mouth disease. Experience has taught the majority of people the infectious nature of many of the more common human diseases, such as smallpox, scarlet fever, measles, etc., but a great many live-stock owners do not realize that the infectious diseases of their domestic animals are just as easily communicable.

Foot-and-mouth disease attacks cattle, hogs, sheep, and goats, and sometimes other animals, including the human. The disease is highly infectious. The germs may be carried on the shoes, clothing, or bodies of persons; upon the feet or bodies of poultry, birds, dogs, cats, or other animals which may have been in the immediate vicinity of afflicted animals; by insects; by particles of straw or litter which may be carried by the wind; and in many other ways.

RAPIDITY OF EXTENSION.

Owing to its extremely infectious nature, foot-and-mouth disease, when once started in a community, spreads with great rapidity. An example of this is shown in the recent outbreak, when in less than three months from the first case, and despite every precaution that could be taken by the authorities, the disease had affected animals in 21 States and the District of Columbia.

The results of an investigation as to the means by which the disease was spread during this outbreak disclosed the fact that about one-quarter of all the affected herds were infected by germs carried by persons, although not one single case was found where the infection was carried by inspectors, these men being required to fumigate and disinfect themselves after visiting each farm. In the majority of cases infection was carried by farmers or some member of their household, who, for curiosity or other reasons, visited infected premises, or where persons from infected premises visited other places where animals were confined.

An interesting example of this is found in the fact that the health authorities of Cincinnati, Ohio, were compelled to have an injunction issued restraining a certain stock buyer from going upon any premises containing animals, as it was ascertained that he was spreading the infection.

PERMANENT IMMUNITY NOT INSURED.

In one respect foot-and-mouth disease differs from the majority of infectious diseases, in which one attack confers upon the person or animal affected a permanent immunity from future attacks of the same disease. Foot-and-mouth disease does not confer such immunity, at least of a permanent or lasting nature. Animals which may recover from the disease during one outbreak may again be attacked during future outbreaks, or they may even reinfect themselves by means of germs carried upon their own bodies.

Certain persons who recover from typhoid fever are known to be carriers of that disease long after they have ceased to show or feel any evidence of the disease. In this same manner animals which have recovered from foot-and-mouth disease may continue to be a constant menace to the health of other animals with which they may come in contact. It is true that these germ carriers, both animal and human, are not frequently found, but the fact that they exist must be taken into consideration when attempting to eradicate the disease.

NECESSITY FOR ERADICATION.

An estimate issued by the Department of Agriculture shows there were in the United States on January 1, 1915, a total of 58,329,000 cattle, 64,618,000 swine, and 49,956,000 sheep. All of these animals are susceptible to foot-and-mouth disease, and should this disease be allowed to spread promiscuously over the country it is fair to assume that the majority, if not practically all of these animals, would become affected.

Although the death rate is not large (estimated from 2 to 3 per cent in average outbreaks), every animal attacked by the disease is injured to a greater or less extent. As the disease continues to spread, however, strains of virus passing through successive herds sometimes result in a much more virulent form of the disease, in which the death rate may reach as high as 40 or 50 per cent of the animals attacked.

In Holland, where the disease now exists continuously, cattle are said to be damaged to an extent of $10 each on the average. In Germany, where the same condition exists, the loss is said to average $7 for each head of cattle attacked by the disease. If the disease should become similarly prevalent in the United States the loss sustained on the vast number of cattle would aggregate an immense sum. While swine, sheep, and goats are injured to a less average extent, the injury in the aggregate would amount to many millions of dollars annually. Breeders of swine in the United States are already

struggling with hog cholera and other diseases peculiar to this species, and to permit foot-and-mouth disease to become prevalent might mean a deathblow to the industry.

Nor do the losses end here. Not only is there considerable danger to human life, through infection of children and weak persons, but the economic loss to the dairying and allied industries, the effect on the market price of animals, and the expense and trouble of unavailing but persistent efforts at quarantine which always result would add to the burdens of the producer and the consumer.

METHODS OF ERADICATION.

Even a superficial study of this question should convince the most skeptical of the necessity of eradicating this disease before it becomes established to the point where eradication is impossible.

Three methods are open by which to control or eradicate an infectious disease, namely, vaccination, quarantine without slaughter, and quarantine with slaughter of all infected or exposed animals.

No vaccine has yet been found which is of value or which will produce a permanent immunity in foot-and-mouth disease. Quarantine without slaughter has been tried in various ways by European countries, and has invariably resulted in permitting the disease to become fastened upon the country employing that method. It has proved impossible to maintain an effective quarantine upon a farm for the long period of time necessary. There remains, then, but one effective method—that of quarantine with slaughter—which is the method now in common use in all countries which have so far successfully coped with the disease.

One large herd of cattle in Chicago was saved from slaughter because conditions made possible methods of quarantine to prevent spread of the disease. Such conditions would be absolutely impossible on an average farm and far too costly to employ with ordinary cattle. This case, therefore, offers no criterion by which the effectiveness of this method may be judged, and the experience of European countries with farm quarantines is that the disease invariably spreads and gains a lasting foothold. The herd in question, which was held in close quarantine at Chicago for a period of seven months, consisted of over 700 valuable pure-bred cattle. They were confined in the second story of a tight brick building. A large force of veterinarians and police officers was employed, and no employee or other person was allowed to leave the building until he had been thoroughly fumigated and disinfected. No outside animals—dogs, cats, poultry, or birds which carry the disease from one place to another—could gain access to the building. Conditions for feeding and handling the cattle and disposing of manure and bedding were such that none of it could get out of the building without being thoroughly disinfected. These conditions would be difficult to duplicate outside of a large city and would be impossible to maintain on any farm. Even were

it possible to maintain similar quarantine on farms the large number of veterinarians needed to supervise the work could not be obtained, and the heavy expense of maintaining such a quarantine would exceed many times the value of the animals involved. In the case of the large Chicago herd the expense per head amounted to several times the average value of farm cattle.

OPPOSITION TO ERADICATION WORK.

Owing to the low death rate and the mild form of the disease which is usually manifested at the beginning of an outbreak, the drastic methods of eradication necessary, and the general lack of public knowledge of foot-and-mouth disease, considerable contention is apt to exist wherever those in charge attempt eradication work.

It should be the duty of every interested stock owner or other well-meaning person in affected districts to assist in preventing the spread of foot-and-mouth disease by every available means.

In all such cases it is necessary for the individual to sacrifice his own special interests and to give a spirit of cooperation in these measures which experience with the disease wherever it has occurred shows to be essential to the safety and prosperity of the national cattle-raising and dairy interests.

YOU CAN HELP.

Every person can help by keeping away from stricken animals. Do not go to see them out of curiosity, and do not permit other members of your household to visit the premises on which such animals are confined. Keep your dogs, cats, chickens, and other domestic animals at home, and keep other people and their animals away from your stock and barns.

Telegraph immediately to the Department of Agriculture at Washington reporting any suspicious cases of sore mouth associated with lameness in your stock. Do not take chances. Delay will save you nothing, and may greatly harm you or your neighbors.

Observe strictly the quarantine regulations and induce your neighbors to do likewise. Experience has shown that where people work with the authorities the loss to the community is trifling compared to what it is when they work against them or show indifference.

If you are feeding skim milk or garbage see that it is thoroughly cooked by boiling before being fed. If there is an outbreak in your vicinity do not permit milk cans or other objects from creameries or other farms to be brought onto your premises.

If the inspector visits your farm aid him in every way to do his work quickly and thoroughly.

If you have not already done so, secure Farmers' Bulletin 666, read it, and assist in disseminating the true information about this disease, for no price is too great to pay to prevent its gaining permanency in this country.

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